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TITLE : PRODUCTION OF ALUMINA-COATED CERAMIC POWDER

ABSTRACT : PURPOSE: To obtain the title powder by putting into a coolant a suspension prepared by dispersing ceramic powder in and adding an organic solvent to an aqueous solution of aluminum sulfate followed by freezing to enable the sublimation-drying time to be shortened in coating the ceramic powder with alumina.

CONSTITUTION: Ceramic powder such as of zirconia is dispersed in an aqueous solution of aluminum sulfate followed by addition of an organic solvent lower in sublimation temperature than water and poorly soluble for aluminum sulfate (e.g., ethanol) to prepare a suspension. This suspension is then injected into a coolant such as liquid nitrogen to produce frozen granules, which are then put to sublimation-drying under a vacuum followed by sintering at 1200°C in the atmosphere, thus obtaining the objective alumina-coated ceramic powder. The powder, when used as a filler in glass ceramics, improves wettability between glass and ceramics, suppresses phase reaction, and improves resistance to the environment.

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